Space Weather Forecast

Issued on Saturday, 12 August 2023 at 13:24 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Moderate flares possible throughout. G1/Minor Storm risk mainly day 3 (14 Aug)

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with common class flares observed from the largest of the small regions in the northwest. There are four active regions on the visible disc. The main flare risk continues to be from this complex region, as while its recent growth has now stalled it has maintained some complex magnetic structure. The large region in the southwest remains stable, while the other bipolar spot in the in the northwest has persisted as a smaller and simpler region. The final region is a small and declining unipolar spot, also in the northwest. There are no Earth-directed CMEs (coronal mass ejections).

Solar Wind / Geomagnetic Activity: Solar winds are indicative of Earth moving through the fast winds from a weak coronal hole. The observed speed remained slightly elevated around 450 km/s. The total interplanetary magnetic field (IMF) remained weak. The north-south component, was erratic, but weak and slightly favouring positive (northward) values. Geomagnetic activity was Quiet throughout (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy proton flux) continued erratically easing from to near background levels after its recent enhancement due to the Strong flare on 07 Aug.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity expected, with a chance of isolated M-flares, predominately from the complex region in the northwest.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. The next fast wind enhancement is expected to be from the arrival of the fast winds from a coronal hole currently in the north, near centre disc. This most likely on day 3 (14 Aug). Initially mainly Quiet geomagnetic activity is expected to become Active to G1 Minor Storm, most likely day 3 (14 Aug), easing again later day 4 (15 Aug).

Energetic Particles / Solar Radiation: The count rate of energetic particles is expected to fall to background, No further enhancements are anticipated through this period, but cannot be ruled out if any Moderate flares occur from the sunspots currently on the western visible disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	60	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	50	40	40
Very Active	R3 to R5 X	No	2	2	2	2

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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